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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/803,292  | 03/18/2004  | Diana Ulrich Kean    | YAMAP0913US         | 5682             |
| 43076   | 7590        | 07/26/2005           | EXAMINER            |                  |
| MARK D. SARALINO (GENERAL)<br>RENNER, OTTO, BOISELLE & SKLAR, LLP<br>1621 EUCLID AVENUE, NINETEENTH FLOOR<br>CLEVELAND, OH 44115-2191 |             |                      | KHATRI, PRANAV V    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2872                |                  |

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

N.A

|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/803,292 | <b>Applicant(s)</b><br>KEAN ET AL. |  |
|                              | <b>Examiner</b><br>Pranav V. Khatri  | <b>Art Unit</b><br>2872            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Claim Objections***

Claim 13 is objected to because of the following informalities: "primary viewing windows" is not clearly defined or shown; also, how the geometric equation relates to the primary viewing window. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isono et al. (US Patent No. 5,315,377).

Regarding claims 1, 3 and 4, Isono et al. discloses a parallax barrier (see Isono et al. Fig 6D) comprising a plurality of substantially opaque regions (dark or black parallel lines of 6D) defining a plurality of groups of parallel slits (uncolored or clear parallel lines of 6D), each said group comprising N of said slits where N is an integer greater than one (Fig 6 shows multiple slits). Isono et al. does not expressly teach said slits of each said group being spaced apart with a first pitch b1 in a direction perpendicular to said slits and said groups being spaced apart with a second pitch b2, in said direction perpendicular to said slits, greater than

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N.b.1; and in which each said substantially opaque regions has a finite width; and in which said second pitch b2 is substantially equal to 2.N.b1.

However, Isono et al. teaches a barrier of a variable pitch can be also generated as shown in FIG. 6D (Col 4 Lines 55-57) which is interpreted to read on said slits of each said group being spaced apart with a first pitch b1 in a direction perpendicular to said slits and said groups being spaced apart with a second pitch b2, in said direction perpendicular to said slits, greater than N.b.1; and in which each said substantially opaque regions has a finite width; and in which said second pitch b2 is substantially equal to 2.N.b1 would also be read on Isono et al. variable pitch.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Isono et al. variable pitch barrier for the purpose of displaying an image which may have different shapes or sizes depending on the slits being spaced apart with different pitch's; in addition, Isono et al. variable pitch width would also be interpreted to adjust the opaque regions with finite width for the purpose of preventing light beam aberration from occurring at the rims of the slits while leaving the brightness of the outgoing light untouched; furthermore, it is well known in the art that the pitch width will determine the size of the image and having different proportions of width is not a novelty.

Regarding claim 2, Isono et al. teaches in which said slits of each said group have substantially a same maximum light transmission (Fig. 2 Numeral OR and OL shows a even maximum light transmission) is well known in the art

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because the image formed by the same maximum light transmission through out the groups would allow for a higher resolution image through out an entire image instead of having varying resolution throughout an image with different levels of transmission lights to each group.

Regarding claims 5 and 6, Isono et al. discloses that  $N$  is equal to 3 (In see embodiment Fig 6C). Furthermore, Isono et al. discloses a variety of embodiments having varying valuing for  $N$ ; therefore, it would have been obvious to one of ordinary skill to choose  $N$  equal to 2 or another variation of slits since the number of slits will determine the resolution of the image and the different sizes or shapes having different proportions depending on the number of slits. The choice of particular number of slits is critical to determining many aspects of the image, and making such a choice is well known and accepted in the art.

Regarding claim 7, Isono et al. discloses an active device (Fig 1) having first and second modes of operation (Col 4 Lines 21-25), said active device providing said group of said slits in said first mode of operation and providing an alternative slit arrangement in said second mode (Col 4 Lines 53-57 and Fig 6A-6B).

Regarding claim 8, Isono et al. discloses in which said alternative slit arrangement comprises a plurality of parallel slits spaced apart with a substantially uniform pitch in said direction perpendicular to said slits (Fig 6A-6B).

Regarding claim 9, Isono et al. discloses in which said active device has an operating area and has a third mode of operation (Col 4 Lines 25-28) in which said active device is substantially uniformly transmissive to light throughout said

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operating area (Fig 6D). Furthermore, Fig 6D the pitch is interpreted to be variably adjusted such that it has no opaque regions or very finite opaque regions which would allow for maximum amount of substantially uniformly transmissive to light throughout said operating area.

Claims 10-14, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isono et al. (US Patent No. 5,315,377) in view of Moseley et al. (US Patent No. 6,473,141).

Regarding claim 10, Isono et al discloses a parallax barrier (see Isono et al. Fig 6D) comprising a plurality of substantially opaque regions (dark or black parallel lines of 6D) defining a plurality of groups of parallel slits (uncolored or clear parallel lines of 6D), each said group comprising N of said slits where N is an integer greater than one (Fig 6 shows multiple slits). Isono et al. does not expressly teach said slits of each said group being spaced apart with a first pitch b1 in a direction perpendicular to said slits and said groups being spaced apart with a second pitch b2, in said direction perpendicular to said slits, greater than N.b.1. Nevertheless, Isono et al. teaches a barrier of a variable pitch that can be also generated as shown in FIG. 6D (Col 4 Lines 55-57) which is interpreted to read on said slits of each said group being spaced apart with a first pitch b1 in a direction perpendicular to said slits and said groups being spaced apart with a second pitch b2 greater than N.b.1. Isono et al. is silent about the teaching of a spatial modulator.

However, Moseley et al. teaches a spatial light modulator (see Moseley Abstract Lines 1-3).

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It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Isono et al. a parallax barrier with a spatial light modulator and rear parallax barrier of Moseley et al. because the combination of the spatial light modulator and parallax barrier produce diffracted light across the viewing window of a display.

Regarding claim 11, Isono et al. in view of Moseley et al. as a combination discloses in which said modulator (see Moseley Fig 18a) comprises a plurality of columns of pixels (SLM R pixel and L pixel) extending parallel to said slits (Parallax barrier 6, Fig 18a of Moseley can be interchanged with Isono et al. Fig 6A-6C).

Regarding claims 12 and 14, Isono et al. in view of Moseley et al. as a combination discloses in which said columns have a third pitch  $p$  in a direction perpendicular to longitudinal directions of said columns, which differs from said first pitch so as to provide viewpoint corrections (see Moseley et al. Col 2 Lines 57-62); and columns have a third pitch  $p$ , in a direction perpendicular to longitudinal direction of said columns, which is greater than said first pitch. Furthermore, it is well known in the art that a column would have a third pitch  $p$  and the size of the pitch with relation to the first pitch is a geometric relationship for the purpose of determining the size of the image, and for the purpose of correcting an image so that each eye of the observer sees the same image across the whole display, and having different proportions of width is not a novelty.

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Regarding claim 13, Isono et al. in view of Moseley et al. as a combination discloses in which said first pitch  $b_1$  is given by:  $b_1 = p / (1 \pm p / e)$ , where  $p$  is said pitch of said columns and  $e$  is a pitch of primary viewing windows produced by said display is well known in the art because there is obviously a geometrical relationship with the pitch of the columns, and the pitch of the slit with the primary viewing windows as shown in Figure 4 of Isono et al.

Regarding claim 22, Isono et al. in view of Moseley et al. as a combination discloses comprising a display driver (see Isono et al. Fig 1 Numeral 24 and 26) for supplying image signals representing a plurality of view as interlaced columns (see Moseley et al. Col 2 Lines 42-44) to said modulator (SLM).

Regarding claim 23, Isono et al. in view of Moseley et al. as a combination discloses in which said image signals represents two views is well known in the art because a stereoscopic image will display an image for the left eye and another for the right eye and can only be seen by one respectively which would be two views.

Regarding claim 24, Isono et al. in view of Moseley et al. as a combination discloses comprising an autostereoscopic display (see Moseley et al. Fig 1a) in which said image signals represent at least one pair of stereoscopic views (see Isono et al. Col 7 Lines 21-24).

Claims 15, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isono et al. (US Patent No. 5,315,377) in view of Moseley (US Patent No. 6,473,141) and in further view of Taniguchi (US Patent No. 6,445,406)



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Regarding claim 15, Isono et al. in view of Moseley as a combination discloses the claimed invention as set forth above. Isono et al. in view of Moseley are silent about in which said columns comprise red, green and blue columns, but it is well known in the art a pixel of the column comprises red, green, and blue for producing a color image.

However, Taniguchi et al. discloses in which red, green, and blue color filters are arranged in a pixel (see Taniguchi et al. Col 18 Lines 3-4).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Isono et al. in view of Moseley parallax barrier and spatial light modulator with a pixel that comprises red, green, and blue for the purpose of displaying a color image.

Regarding claims 16 and 19, Isono et al. in view of Moseley and in further view of Taniguchi as a combination discloses in which  $N$  is equal to 3 (see Isono et al. Fig 6C), furthermore, if  $N$  is equal to 2 or another variation, the number of slits are known to change the size or shape of an object and is not a novelty.

Regarding claims 17 and 18, Isono et al. in view of Moseley and in further view of Taniguchi as a combination discloses in which said columns are arranged as repeating groups with each group arranged in an order blue, red, blue, red, green, blue, green, blue, red, green, red, green or in another order green, green, blue, blue, red, red are also well known in the art as shown by Isono et al. in Fig 2. For the first combination, the order of arrangement is set for producing color in the right eye and left eye with two sets of Red, Green, or Blue (RGB) and changing these combinations to produce color is not a novelty as shown in Fig 2

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of Isono et al. Furthermore, the second combination order of arrangement is set for producing color as well, but with only one set of RGB per eye, and producing color with different arrangements is not a novelty.

Regarding claims 20 and 21, Isono et al. in view of Moseley and in further view of Taniguchi as a combination discloses in which said columns are arranged as repeating groups of 18 (see Isono Fig 6D) with each said group comprising three consecutive pairs of identical triplet and with colors of said triplets of said consecutive pairs being rolled by one position with respect to each other, and in which said columns are arranged as repeating groups of 36 with each said group comprising six consecutive pairs of identical triplets, said triplets of said consecutive pairs having order comprising all permutations of red, green and blue are methods that are both well known in the art because each pair should have three colors so when displayed back to the viewers left eye and the right eye the entire image is visible and the image is in color; furthermore, the number of repeating groups will only increase the size of image for the viewer and is also well known in the known art.

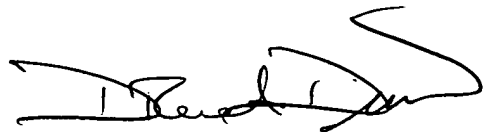
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pranav V. Khatri whose telephone number is 571-272-8311. The examiner can normally be reached on M-F, 8:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pranav Khatri  
Examiner  
Art Unit 2872



**DREW A. DUNN**  
SUPERVISORY PATENT EXAMINER